Fairfax County
Stormwater Needs Assessment Project
Level and Extent of Service Discussion Paper
Background

I. Definitions

The policy on service level philosophy defines how the County will approach its stormwater management and flood control program in the future. It generally describes how services will be administered, performed, and measured. The County's service level philosophy is likely to change gradually over time as the program is refined and expanded to address mandates from Federal and State regulators on water quality protection. In addition, physical system operation and maintenance standards will also adjust as community needs and expectations are met.

The objective at the outset, to assist the County in defining program priorities and service levels, is to identify what options exist and what are the most practical policy positions for the County in terms of where services should be performed, the extent of various types of services performed on the drainage system, and the level of service to be delivered. The following definitions delineate the major segments of the service level philosophy policy issue.

- Service Area addresses the geographical area where the County should accept responsibility for and perform stormwater management and flood control services through its stormwater program, providing regulatory control, capital improvements, and operations. It defines the "outer geographic boundaries" of the County's program in actual application. The service area may be different from the jurisdictional limit of the County which remains its legal corporate boundaries.

- Extent of Service addresses the application of specific stormwater responsibilities and activities to the physical systems. It defines the "inner boundaries" of specific elements of the stormwater management and flood control program in a manner similar to the way Service Area defines the outer boundaries. The philosophy guides decisions on how far up into the various types of systems the County should regulate, improve, and maintain stormwater facilities and conveyance.

- Level of Service policy defines system performance capability objectives, the condition that should exist in each type of system, and/or how much production is desired in certain activities. They also dictate how system performance and conditions should be judged, measured, estimated, or otherwise validated, and how productivity yardsticks can be used to guide management decisions.

Service area, extent of service, and level of service decisions are closely related and are meant to complement each other. Service area is probably the easiest to define or

establish because it is less dependent on other information. Extent of service decisions rely on information about the stormwater systems on public and private properties, the services to be provided and maintained, accessibility, and legal precedent. Much of the information required for making detailed extent of service and level of service decisions is readily available in the County, and a guiding principle defining County responsibility can be developed.

II. Service Area

For most communities the process for identifying the "service area" is a moot point as the service area is coincident with the political boundaries (except where the boundary abuts and crosses an extensive Federal, state, municipal or private facility where stormwater services may be performed by that owning agency). Within the political boundary for Fairfax County are three incorporated cities that manage their own stormwater programs (Fairfax City, Herndon and Vienna), so the service area does not match the political boundary of the County. In addition, the responsibilities and role in serving area within Clifton must be addressed.

A statement that clarifies the responsibility of the County is appropriate and important to ensure that community expectations are managed and met. To the extent that Fairfax County influences or controls decisions for plan review, system development standards, water quality protection and infrastructure operation and maintenance, it should exercise its authority in coordination with other aspects of its stormwater program goals, objectives, plans, and operating policies. Understanding the County government's role within its jurisdictional boundary starts with identifying the geographical limits.

A specific statement of service area should be developed to establish appropriate expectations of responsibility.

III. Extent of Service

Overview

A drainage system, starting from its headwaters at a ridge line and moving downstream, typically carries incrementally larger and larger flows. At the upper-most point in any given watershed, or along any given drainage path, the County's stormwater management role would likely be minimal or limited solely to regulatory responsibility for the private management of on-site systems, water quality management, and erosion and sediment control. At some point in each drainage system the County generally assumes a basic level of responsibility for the condition and operational performance of segments of the physical system, though that responsibility is commonly limited by the legal and/or physical accessibility of the systems. Moving downstream in the systems, the County typically provides more and more services due to increasing cumulative impacts from individual properties as flow increases and individual property impacts become difficult to isolate and measure. Additional operational functions and capital improvement responsibilities are added as circumstances warrant, and acquisition of adequate access becomes a more important part of the program as the size of the tributary area and volume of flow increases.

As a stormwater program matures, this dynamic situation usually tends to move the extent of the County's various responsibilities upstream with the County taking on responsibility for more and more of the physical system of conveyance, storage and treatment. Reasonable

and practical limits inevitably stop short of extending public responsibility to the very upper most reach of a hydrologic system. For example, the ridge of a house roof is the upper most limit of a very small drainage area, but it would be unrealistic for the County to be responsible for the gutters and downspouts leading from each roof. A small swale carrying stormwater from a ridge line between a few houses would not usually be publicly improved or managed. Case law related to public responsibility for the impact of storm and surface water and the practical demands of effectively managing stormwater systems generally combine to determine the upper limits of public responsibility for the systems. Beyond that point, the private property owners have responsibilities as determined by the basic water law regime operative in each state.

Legal Implications of the Extent of Service Definition

Fairfax County owns conveyance systems, which are constructed, owned and operated for the public's benefit. The express power to grade and open streets implicitly carries with it the power of local governments to establish a storm drainage system. In Virginia, the majority of roadways are designed, regulated and/or built by the Department of Transportation (VDOT). The physical drainage system found in the right-of-way of the State highway system is the responsibility of VDOT.

The power of construction of conveyance systems for stormwater flow management does not include the right to redirect surface waters onto adjacent private properties, to the landowner's detriment. In such cases the owner may pursue litigation for damages. Therefore, the duty of the local government is two-fold. It must adequately design and construct its drainage conveyance system so as not to divert water onto private property in quantities above that of its natural flow so as to cause damage, and thereafter it must maintain the drainage system so that its operation does not constitute a nuisance.

Private developers build houses and other structures, often diverting the surface waters from their lots into the streets. Some divert their waters directly into the public drainage system; while others construct their own systems then publicly dedicate the drainage system to the local government. In other cases, the ownership of the drainage system is maintained by the private property owner but a dedicated easement is granted to the local government for maintenance purposes, usually defined within the dedication process. Upon acceptance of dedication of the drainage system, the local government becomes responsible for the maintenance and repair of the system.

These thoughts lead naturally to the conclusion that a local government would be well advised to think of the drainage system in a manner similar to the water and waste water collection systems. In these other systems there is a clear break point where private responsibility stops and fee-based public responsibility begins. For drinking water it is at the meter. For wastewater it is when the drain pipe first connects to a local sewer main. For stormwater there should also be a clear demarcation point. There are several delimitations local governments have used in the past, listed in order of least to most comprehensive:

- the right-of-way edge line of publicly owned property;
- the right-of-way edge line plus locations where a permanent easement has been obtained;

- the above limits plus major creeks and ditches;

- the above limits plus all segments where public (i.e., runoff from public property) water flows.

Implications of Extent of Service Definition

It is important that the County specifically define the "public" drainage system as part of its extent of service analysis. A definition of the "public" drainage system helps to answer questions such as: When is a ditch or stream part or NOT part of the local stormwater system that is public responsibility for services?

The definition of "stormwater facility" or "flood control facility" must take into account a broad range of structures, conveyances, and flood and pollution protection measures. We can presume that the definition of a flood control facility includes all structures and conveyances over which the local government has assumed responsibility to improve, protect and use to control or convey storm runoff flows. It includes all activities that keep flood waters from people and people from flood waters. There are over 1100 public stormwater management facilities maintained by the County and there are over 2200 privately owned facilities. The County maintains approximately 1400 miles of storm sewer and 800 miles of streams.

On the surface it may seem appropriate to exclude rivers, creeks and streams within a local community from the definition of service extent. However, the idea that these bodies of water along with all discharges from the local community into them are, in some measure, the responsibility of the local community is strongly supported by laws such as the 1987 Water Quality Act and its implementing regulations. The County is responsible for implementing control programs on all dischargers to waters of the state through its regulatory and land use authority, its mandated illicit connections and illegal discharge program, its requirement for the use of BMPs, its requirement for regulation of industrial discharges, and the State's mandate for inspections of construction sites.

Secondly, should the stream reach in question be placed on Virginia's 303(d) list (i.e., the list of waters of the state that are impaired and not performing under designated uses) and storm runoff sources are identified as contributors to the impairment, the County will likely be required to take responsibility for control of the pollutant of concern.

Thirdly, distinguishing between most receiving waters and stormwater conveyance systems is becoming nearly impossible. Most local communities spend a large amount of revenue on the major stream system protecting major streams from instability and pollution and riparian properties from flooding. All these riparian properties drain to these systems and their flow is carried through or past flood control and bank protection works just as surely as those who first flow through a ditch or pipe section on the way to larger ditches, streams or rivers. The County's Stream Protection Strategy, Chesapeake Bay Preservation Ordinance and establishment of Resource Protection Areas demonstrate the degree of responsibility the County has outlined for itself.

And lastly, all properties and their owners, regardless of location, benefit from installation of an adequate stormwater management system, and the proof of special benefit assigned to each property is not necessary on a property by property basis for the County to assume responsibility for the management of stormwater runoff. All property

owners share in the general benefits of cleaner water, safe streets during storms, greenway systems, environmental education, and sounder development practices.

Based on the above discussion, it is not recommended that the County make any distinction in its definition of its "public" stormwater system based on property location with respect to any drainage conveyance or stormwater pollutant control or flood control facility. The definition should be broadly defined to identify areas of responsibility, but should be exclusive by clarifying those system features that are distinctly private or owner issues.

It is recommended that Fairfax County define its extent of service to include all storm drainage segments that carry runoff water from County-owned property and County rights-of-way, clarifying its relationship to VDOT and the street network drainage, and that it also extend some type and level of service to defined segments identified through a currently maintained stormwater system inventory, and on a prioritized manner over time. Criteria for determining public responsibility should be defined to the extent practical so that it can be communicated to the public and give clarity of purpose for the organizational units of County government responsible.

IV. Level of Service

Most communities must struggle with imprecision as they define the desired levels of service to be provided in broadly varying conditions. Stormwater systems, conditions, and service needs are typically diverse, ranging from newly developed urban setting to older undersized and decaying infrastructure.

There are several levels of service that can be defined. The basis for this definition is that some segments, if failing, will result in more severe damage or higher risk to human health and property, and thus should be treated to a higher level of service. The key is that similarly situated properties are treated in a similar and consistent manner.

It might be that the highest level of service is reserved for those segments that are within a County-owned facility (or structure) or within a permanent easement and, if failed, would block roads or flood habitable property. If a property owner wanted and qualified for this level of service, they would need to grant a free permanent easement. Similarly, the level of service would be low for a segment of the drainage system that is not within an easement or directly owned by the County and where system failure would result in little damage. Regulatory oversight through inspection of the facility every couple years and complaint related service only may be appropriate.

Once a service level philosophy and approach are defined, more precise explanations of levels of service for various activities and types of system improvements can be formulated and the cost of attaining those objectives can be estimated. Adjustments can then be made in the levels of service in light of the need to balance priorities with the available funding. Several iterations of this process may be needed to devise the optimum initial level of service. Continual refinement is suggested to increase the usefulness of service level measures as the program evolves.

It is recommended that the County initially define the desired levels of service simply reflecting current state of knowledge of the drainage system, and refine its level of service definitions within the first five years of an expanded program as knowledge of the system,

costs, and abilities to meet needs are clarified and experience is gained. The goal of the level of service decisions is that, over time, the County will achieve the goal that similarly situated properties are treated in a consistent and similar manner.

Discussion Points:

1. What are the limits of the physical infrastructure that the County should:

    a. perform operational responsibilities such as maintenance, rehabilitation or capital construction?
    b. regulate, oversee, inspect or otherwise establish standards of performance?

2. What standards of service should drive priorities for the operation, regulation and construction of the stormwater system?